

### **DETAILED ACTION**

Applicants' arguments, filed 5/2/2011, have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

#### ***Claim Rejections - 35 USC § 103--Previous***

1) Claims 3-11, 13, 14, 16 and 21-31 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al., (US 6,416,744) in view of Cordon et al. (US 3,989,814).

2) Claim 12 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al. (*supra*) and Cordon et al. (*supra*) as applied to claims 3-11, 13, 14, 16 and 21-31 above, and further in view of Gibbs et al., (International Journal of Food Sciences and Nutrition 1999).

3) Claim 15 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al. (*supra*) and Cordon et al. (*supra*) as applied to claims 3-11, 13, 14, 16 and 21-31 above, and further in view of Rajaiah et al., (US 2003/0072841).

### **Response to Arguments**

a) Applicant argues one of ordinary skill in the art would not have modified Robinson et al. to include a tooth whitening agent comprising calcium pyrophosphate as recited in the instant claims (see Remarks at pg. 3, last paragraph through pg. 4). Applicant states, although the reference teaches combining abrasive silica with other abrasive material, the teaching in the reference in regard to the amount of silica abrasive "from about 0.2 to about 5.0%" is in regard to the total of silica abrasive and other abrasive material (see pg. 5, paragraphs 1-3).

The examiner disagrees.

The reference very clearly teaches that the amount of "from about 0.2 to about 5.0%" was in regard to "The total quantity of abrasive silica present in the chewing gum" (see col. 3, lines 4-7). The amounts for the other abrasives, which may be added to the composition, would have been determined by the person having ordinary skill in the art.

The test of obviousness under **35 U.S.C. §103** is not the express suggestion of the claimed invention in any or all of the references, but what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. Note *In Re Rosselet*, 347 F.2d 847, **146 USPQ 183** (CCPA 1965) and *In Re Simon*, **461 F.2d 1387, 174 USPQ 114** (CCPA 1972). One skilled in this art would have understood that the various features of Robinson et al. and Cordon et al. would have been combined to obtain the expected additive benefits, i.e. the superior cleaning and polishing characteristics of calcium pyrophosphate in an amount of at least about 7.5% by weight (see Cordon et al. at col. 1, lines 15-19).

b) Applicant argues that the skilled person would not have combined the disclosures of Robinson and Cordon as the disclosure of Robinson relating to the concentration of silica abrasive would not lead one having ordinary skill in the art to add calcium pyrophosphate let alone calcium pyrophosphate in the amount recited in applicant's claims in any composition of Robinson (see Remarks at pg. 1, 2nd paragraph).

This argument is not persuasive.

The reference to Robinson et al. clearly teaches that other abrasives may be added to the compositions, i.e. "calcium carbonate, sodium bicarbonate, sodium metaphosphate, potassium metaphosphate, tricalcium phosphate, dihydrated calcium phosphate, bentonite or other sileaceous materials, or combinations thereof" (see Robinson et al. at col. 2, lines 65-67 thru col. 3, lines 1-3). Calcium pyrophosphate would have been obvious since it is a well-known dental abrasive, even in combination with abrasive silica, which provides superior cleaning and polishing characteristics, as taught by Cordon et al. Cordon et al. also teaches using at least 7.5% calcium pyrophosphate which falls within applicants claimed range.

c) Applicant argues that even if it would have been obvious to have included calcium pyrophosphate in the composition of Robinson et al. the amount would not have exceeded 2 wt% of the chewing gum "due to the disclosed enamel aggressiveness of mineral adjuvants in Robinson" (see pg. 6, 3rd paragraph). Applicant adds that the combination would essentially destroy the desired objectives of Robinson (Id.).

This argument is not persuasive.

There is no teaching in Robinson et al. limiting the amount of other abrasive components to less than 2 wt%. The use of calcium pyrophosphate in an amount between 3% and 8% as claimed would not destroy the desired objectives of Robinson et al. since the reference teaches adding phosphate salts, e.g. pyrophosphates, "in concentrations of about 0.5% to about 7%" (see col. 4, lines 4-14). Furthermore, it would not be expected to be used in high concentrations i.e. in the order of 10-40%, since Robinson et al. taught that high concentrations were known to be "unduly harsh to tooth enamel" (see col. 1 lines 47-55). Moreover, Cordin et al. teaches an amount of 7.5% calcium pyrophosphate, which falls outside of this 10-40% range.

d) Applicant argues that one of ordinary skill in the art would have no reasonable expectation of success for using calcium pyrophosphate in a chewing gum since the physical application of toothpaste versus a chewing gum is considerably different (see Remarks at pg. 6, last paragraph). Applicant adds that chewing gums generally require considerably higher amounts of polishing agents (see Remarks pg. 7, 1st and 2<sup>nd</sup> paragraphs).

This argument is not persuasive.

A chewing gum is not being combined with a toothpaste, here. Cordon provides motivation for selecting calcium pyrophosphate as the other abrasive agent in the composition of Robinson, since it has superior cleaning and polishing properties. Because Robinson et al. teaches using lower amounts of a polishing agent, i.e. silica

abrasive, the artisan would not expect to use "higher amounts of polishing agents" in the composition of Robinson et al., especially since Robinson teaches that amounts in the order of 10-40% by weight have been found to be unduly harsh to tooth enamel. The artisan would have a reasonable expectation of success in using calcium pyrophosphate in the compositions of Robinson et al., since Robinson et al. teaches that the compositions comprise pyrophosphate salts (see col. 4, lines 4-14).

e) Applicant argues that amounts of 3-8% wt% of calcium pyrophosphate in a chewing gum or confectionary composition are surprisingly effective in terms of tooth-whitening (see Remarks at pg.7, 3<sup>rd</sup> paragraph).

This argument is not persuasive.

The prior art, i.e. Cordon et al., recognized the superior cleaning and polishing characteristics of calcium pyrophosphate. Since teeth are generally perceived as white, calcium pyrophosphate is expected to "whiten" teeth through the removal of pellicle film, which Cordon et al. describes as "a tightly adherent film which often contains brown or yellow pigments and imparts unsightly appearance to teeth" (see col. 1, lines 40-45). Thus, tooth-whitening effect of calcium pyrophosphate is not surprising.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 8:00am-4:00pm Mon-Fri EST.

Art Unit: 1612

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb  
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